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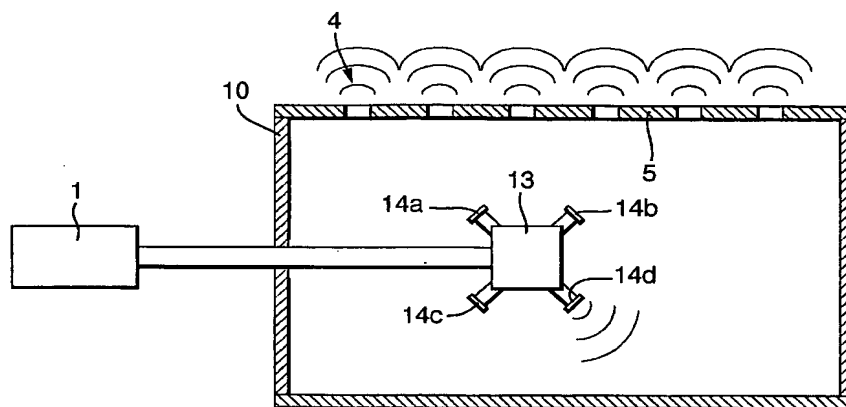
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(54) Title: **IMPROVED MILLIMETRE AND SUB-MILLIMETRE WAVE ILLUMINATION SYSTEM**



(57) **Abstract:** An improved illumination system at millimetre and sub-millimetre wavelengths includes at least one primary source of radiation at the required wavelengths, a reflecting surface and a baffle comprising a plurality of exit apertures arranged such that at least some of the radiation from the source is reflected from the reflective surface before proceeding to the baffle, characterised in that means are incorporated for generating a plurality of radiation field states within a pre-determined time interval. The baffle, source and reflector are preferably packaged into a container with the exit apertures providing an illumination output. The generation of the plurality of radiation field states provides an illumination at the illuminator output that is less spatially variable when integrated over the pre-determined time interval. Embodiments of the invention show means for generating the plurality of radiation field states including relative movement of the reflective surface, variable positioning of the source with respect to the reflective surface, and including multiple sources within a single system.

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